

(19) World Intellectual Property
Organization
International Bureau



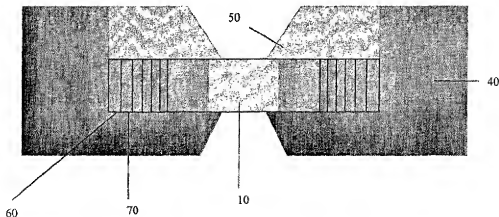
(43) International Publication Date
30 June 2005 (30.06.2005)

PCT

(10) International Publication Number
WO 2005/058519 A1

- (51) International Patent Classification⁷: **B21C 3/02**
- (21) International Application Number: PCT/US2004/041488
- (22) International Filing Date: 9 December 2004 (09.12.2004)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data: 60/528,372 10 December 2003 (10.12.2003) US
- (71) Applicant (for all designated States except US): DIAMOND INNOVATIONS, INC. [US/US]; 6325 Huntley Road, Worthington, Ohio 43085 (US).
- (72) Inventor; and
- (73) Inventor/Applicant (for US only): WEBB, Steven W. [US/US]; 253 Weydon Road, Worthington, Ohio 43085 (US).
- (74) Agents: TENER, Carissa et al.; Pepper Hamilton LLP, One Mellon Center, 50th Floor, 500 Grant Street, Pittsburgh, Pennsylvania 15219-2502 (US).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NL, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, NI, SD, TD, TG).
- Published:**
- with international search report
 - before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments
- For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: WIRE DRAWING DIE



(57) Abstract: The present invention relates to a die comprising a die core (10) of a hard material and at least two pre-stressed rings (60, 70) of increasing diameter placed around the die core and methods of making and using the same. The die core (10) is held in place by a force generated through deformation of mating geometric features on the die and the rings (60, 70) of increasing diameter.